

105.8 - DNA Profiling (solid forms)

SRMs 2390, and 2391b are intended for use in the standardization of forensic and paternity quality assurance procedures and instructional law enforcement or non-clinical research purposes. SRM 2392 is intended to provide quality control when performing the polymerase chain reaction (PCR) and sequencing of human mitochondrial DNA (mtDNA) for forensic identifications, medical diagnosis, or mutation detection. It may also be used as a control when amplifying (PCR) and sequencing any DNA.

SRM 2390 DNA Profiling Standard, based on Restriction Fragment Length Polymorphism (RFLP) testing, is certified for the sizes of each allelic band of five commonly used DNA probes of two human DNA samples; one is from a female cell line, and the other is from a male source. SRM 2390 consists of 20 components packaged in three boxes.

SRM 2391c includes short tandem repeat (STR) information for all genomic DNA samples in the SRM. The STR data includes the Federal Bureau of Investigation's (FBI's) CODIS (Combined DNA Index System) 13 core STR loci, including loci that were commercially available at the time of certification. Certified values for a total of 41 STR loci, 17 of which are Y-STRs, and Reference values for 26 STR loci are included in this issue. The new standard includes well-characterized DNA in two forms: genomic DNA and DNA to be extracted from cells spotted onto 903 and FTA filter papers. SRM 2391c consists of 6 components packaged in one box and stored at refrigeration temperatures **NOT** frozen).

SRM 2392 Mitochondrial DNA Sequencing contains DNA extracted from two cell lines plus cloned DNA from a region that is difficult to sequence. The certificate accompanying the SRM details the base pair sequences of the DNA, and the sequences of 58 unique primer sets which permit the amplification and sequencing of any specific area on the entire human mitochondrial DNA (strand). SRM 2392 consists of three frozen components packaged in one box.

SRM 2392-I Mitochondrial DNA Sequencing complements and adds another DNA template to SRM 2392 for the amplification and sequencing of human mtDNA. The selection of the HL-60 cell culture line for this additional DNA template was based on a suggestion from the Federal Bureau of Investigation (FBI) that this DNA would be particularly useful to the forensic community.

SRM 2394 Heteroplasmic Mitochondrial DNA Mutation Standard contains mixtures of a 285 base pair polymerase chain reaction (PCR) product from two different cell culture lines that differ by one base pair. These mixtures contain varying ratios of the minor/major heteroplasmy including 1/99, 2.5/97.5, 5/95, 10/90, 20/80, 30/70, 40/60, and 50/50. This SRM is intended to provide quality control in determining the sensitivity of heteroplasmic low-frequency single nucleotide mutation detection techniques.

SRM 2399 Fragile X Human DNA Triplet Repeat Standard is the leading heritable cause of mental retardation and the number of Fragile X tests conducted for carrier screening, pre-natal screening and diagnoses is second only to that for cystic fibrosis. SRM 2399 is intended to provide quality control to clinical laboratories that test human samples for Fragile X and need to determine the number of CGG trinucleotide repeats. This SRM consists of nine vials of amplified DNA (PCR) products containing 20 to 118 trinucleotide repeats; this range encompasses individuals with normal and premutation numbers of repeats.

For further information see [SR260.135](#).

SRM	Description	Unit of Issue
2366	Cytomegalovirus (CMV) for DNA Measurements	3 vials
2372	Human DNA Quantitation Standard	set (3 x 1 each)
2390	DNA Profiling Standard	set (20)
2391c	PCR Based DNA Profiling Standard	6 vials
2392	Mitochondrial DNA Sequencing	set (3)
2392-I	Mitochondrial DNA Sequencing	each
2393	CAG Repeat Length Mutation in Huntington's Disease	set (6)
2394	Heteroplasmic Mitochondrial DNA Mutation Detection Std	set (10)
2395	Human Y-Chromosome DNA Profiling Standard	set (6)
2396	Oxidative DNA Damage Mass Spectrometry Std	set (12)
2399	Fragile X Human DNA Triplet Repeat Standard	set (9)

Certified values are normal font.

Reference values are italicized.

Values in parentheses are for information only.